
Space Weather Forecast

Issued on Wednesday 23 October 2024 at 13:18 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Increasing chance of radio blackouts.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity observed at GOES16 and 18 was Low with only occasional minor Common class flares, peaking at C5.1 at 22/1211 UTC.

Solar activity has been Low with only C-class flares observed, the largest a C5.1 at 23/0026 UTC from a region behind the southeast limb. There remains a chance of isolated Moderate flares, most likely from the regions indicated to be close to, or approaching, the eastern limb (such as Ex-AR3842).

A filament eruption occurred around 22/1715 UTC in the northwest quadrant. This filament was small but an associated CME was generated. Analysis has proven complex but the bulk of the ejecta is expected to not be Earth directed.

Solar Wind / Geomagnetic Activity: Solar winds were indicative of a slow regime with weak coronal hole influence. The solar wind speed was slow-ambient but on a slight rising trend. The Interplanetary Magnetic Field was at weak levels to start, but became moderate at times after 23/0100 UTC, with a peak at 23/0330UTC. The north-south component was weak. The net result of the above solar wind measures was Quiet to Unsettled (Kp 1-3).

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Activity is likely to be Low, with a chance of Moderate activity from isolated Moderate-class flares initially, until new or returning regions rotate onto the visible disc. Several notable active regions may arrive from behind the eastern limb, potentially increasing the solar activity later in the period.

Solar Wind / Geomagnetic Activity: Currently there are no Earth-directed coronal mass ejections in the forecast, although a coronal mass ejection from the small filament eruption in the northwest on the 22nd Oct may give a slight chance of a glancing blow later in the period. The most recent coronal hole was weaker than expected, with waning effects lingering through day 1 into day 2 (23/24 Oct). The next coronal hole high speed stream is due day 3 or day 4 (25th or 26th). Overall background solar winds are expected to predominate, with mainly Quiet to

Unsettled (Kp 0-3) geomagnetic activity, and just a slight chance of Minor/G1 geomagnetic storm levels (Kp 4-5) being reached at times later in the forecast period.

Energetic Particles / **Solar Radiation:** No solar radiation storms are expected.

Geomagnetic Storms

Geomagnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	5	5	20	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 (M Class)	No	25	30	40	40
Very Active	R3-R5 (X Class)	No	5	5	10	10

Solar Radiation Storms (High Energy Protons)

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = cm ⁻² sr ⁻¹ s ⁻¹)						